Independent claims 1 and 16 recite that the "width of each slit is in a range from 0.2 to 1 mm, and a length of each slit is from 1 mm to a length which is the shorter of (a)30 mm and (b) 1/2 of a length of the honeycomb structure." The Office Action asserts that Hijikata discloses the recited slits, but acknowledges that Hijikata does not disclose the recited dimensions for the slits.

Rather, the Office Action asserts that the dimensions of the slits are a "result effective variable" that could have been optimized through routine experimentation by one of ordinary skill in the art, based on the disclosures of Tomita. Applicants again reiterate the argument that neither the width, nor the length, of the slit is a result effective variable, for the reasons already of record.

In the interests of advancing prosecution Applicants further submit it would not be obvious to combine Hijikata and Kuwamoto for the following reasons.

I. Hijikata Does Not Disclose a Checkered Pattern of Plugged Cells and Thus Cannot produce the Same Fluid Flow Arrangement as Kuwamoto.

First, claim 1 recites that "all of said through channels have plugging portions, respectively that plug alternately at either one end of the honeycomb structure or its opposite end in a checkered flag pattern." Kuwamoto discloses a honeycomb that has some of these features.[1] Yet Hijikata does not contain a checkered flag pattern.

Rather, Hijikata discloses an alleged honeycomb structure in which all of the channels in a single row are plugged at the same end and all of the channels in the next row are plugged at the other end. See Figs. 3-5 of Hijikata. Furthermore, the alleged slits are aligned with the common gap formed along all of the channels in a single row. Fig. 5 of Hijikata best

[1] Applicants note that Kuwamoto discloses that along the periphery of the honeycomb all of the alleged channels are plugged only at the inlet end. See Figs. 1 and 2 of Kuwamoto. Kuwamoto discloses that this "second sealing portion" is designed to reduce accumulation of particles near the outer peripheral wall." See col. 4, lines 45-49 of Kuwamoto. Thus, Kuwamoto does not actually disclose the pure checkered flag pattern recited in claim 1.

illustrates this, as channel 36 shows an uninterrupted flow line from one end of the honeycomb to the other end, under a common plug. See Fig. 5 of Hijikata, a cross-section along line V-V of Fig. 4.

This pattern results in significantly different airflow patterns that would result if slits were placed along the edge of the channels of Kuwamoto, or the claimed honeycomb, as will now be demonstrated. Claim 1 recites that the slit is only placed "in the vicinity of the plugging portion." Thus, in a checkerboard patterned honeycomb adjacent channels will not have slits, Rather, only every other channel will have a slit (near the plugged portion). As such, there cannot be a common airflow across the entire honeycomb, as shown in Hijikata. The entire functional operation of Hijikata is premised upon this flow system. But this flow system is not, and cannot be, present in Kuwamoto. Thus, those of ordinary skill in the art would not have believed the slits of Hijikata would work in, or have any relevant application to, a honeycomb such as Kuwamoto.

Thus, one of ordinary skill in the art would not have thought it obvious to try and modify Kuwamoto with the slits of Hijikata on because they would not have believed such a combination could be made to work with a reasonable chance of success.

II. The Pulse Air Cleaning System of Hijikata Will Not Work in a Checkerboard Pattern Honeycomb

Hijikata further explains the designed operation of its alleged slits. The Office Action asserts the channels 36[2] of Hijikata are analogous to the recited slits. Hijikata discloses that during normal filtering operations particulate matter accumulates in the honeycomb on the partition walls. See Hijikata, col. 6, line 64 to col. 7, line 10. Periodically, a valve stops inlet

[2] Applicants note that claim 1 recites "channels" when referring to the channels formed by partition walls flowing from the inlet to outlet end of the honeycomb. To prevent confusion any instance of the word channel, not followed by the number 36 shall refer to the channels of claim 1.

flow of exhaust gas, and instead pulses gases (in part from the auxiliary gas stream, through the channel 36) to blow the accumulated material into a recapturing tube 50. See Hijikata, col. 7, lines 12-59. Later these particles are burned. See Hijikata, col. 7, lines 62-65.

In other words, those of ordinary skill understand that the purpose of the channel 36 of Hijikata is designed to serve as a flow path for pulsed air to blow particulate matter to a burning area. But as explained above, in a checkerboard pattern honeycomb no flowpath exists from an outside slit to internal channels. Thus, those of ordinary skill understand that the flow system of Hijikata, and its alleged slit (channel 36), have no use in a honeycomb such as Kuwamoto or the claimed honeycomb.

Moreover, slits in the channels of a honeycomb reduce pressure, and lower filtration efficiency. Thus, those of ordinary skill in the art would not put slits into a honeycomb absent a specifically articulated purpose. Yet the purpose proposed by Hijikata could not work on the honeycomb of Kuwamoto. Thus, one of ordinary skill in the art would not have thought it obvious to try and modify Kuwamoto with the slits of Hijikata because they would provide no identifiable benefit to the honeycomb of Kuwamoto.

It should be noted that Applicants' specification contains specific details of how the slits operate and work, and their intended benefit. No suggestion of the method of operation or planned benefits are presented in any of the applied references.

III. Tomita Does Not Prove that Slit Length Affects a Known Results Because the Slits of Tomita are Completely Different in Type, Size and Purpose as Those of Either Hijikata or the Claimed Honeycomb.

The Office Action asserts that Tomita discloses that as opening area increases pressure loss and filtration efficiency decrease. This assertion lacks merit because Tomita is testing for a substantially different purpose than the recited slits and the alleged slits of Hijikata. As noted in earlier responses, "a particular parameter must first be recognized as a result-effective variable, i.e. a variable which achieves a recognized result, before the

determination of the optimum or workable ranges of said variable might be characterized as routine experimentation" (emphasis added). See MPEP 2144.05(II)(B). Tomita discloses creating a balance between filtration efficiency and "blowing pore" size. The Office Action notes that Tomita explains that if the opening area is too small the honeycomb structure will quickly become clogged by particulates, but that if the opening area is too large the exhaust gas will not be filtered. See Office Action, page 4, lines 4-8.

However, this analysis is irrelevant to both the function of Hijikata and the claimed invention. In Hijikata, the channels 36 are designed to allowed high pressure air flow to purge particle material. Thus, the size and shape of the channel 36 is dictated by the requirements of the pulsing air system, not the filtration efficiency.

Perhaps even more importantly, Applicants specification explains that during normal filtration the recited slits are supposed to become clogged. See paragraph [0021] of Applicants' specification. Specifically, in order to reduce the pressure loss associated with the slit, the slits are designed to be long, but very narrow. This results in particulate matter quickly clogging the slit completely. This prevents pressure loss during normal filtration operations. See [0021]-[0023]. Then during the regeneration treatment the particulate matter is burned in the channels. The remaining ash is fine enough to pass through the slits and out of the honeycomb. See [0023]. This specific purpose drives the specifically recited dimensions recited in claim 1.

Furthermore, as noted in earlier Office Actions Tomita does not separately address the optimum length and widths of the slit. Rather, Tomita only deals with the area as a whole. However, Applicants' specification clearly demonstrates the criticality of the choice of both length and width separately, for different purposes, as explained above.

Thus, Tomita does not demonstrate to one of ordinary skill in the art that slit width affects the known result of trapping efficiency versus ash disposal. Additionally, none of the

applied references suggest the criticality of the slit dimensions for the purpose of first trapping particulate matter to clog the slit during filtration operations (to prevent pressure loss) and then using the slit as an ash disposal slot after regeneration.

For at least the above reasons, the applied references do not disclose or suggest that the width of each slit is in a range from 0.2 to 1 mm, and a length of each slit is from 1 mm to a length which is the shorter of (a)30 mm and (b) 1/2 of a length of the honeycomb structure, as recited in claims 1 and 16. Thus, withdrawal of the rejection of claims 1 and 16, and claims 2, 4-15, and 17-21 depending therefrom, is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 2 and 4-21 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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